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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,883

07/23/2007

Frank Jones

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EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

08/04/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,883	<b>Applicant(s)</b> JONES ET AL.	
	<b>Examiner</b> Camie S. Thompson	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/10/06</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 20-21, 28-29, 48, 51-52 and 61 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims are dependent upon Examples in the specification.

2. Claim 42 is objected to because of the following informalities: The term “in” in the third line of the claim is misspelled. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 31-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 is dependent from claim 2, which recites carbon fibers. However, claim 4 has a broader limitation reciting carbon fibers, glass fibers, ceramic fibers, metal fibers, and metal coated fibers.

Claims 31-47 are rendered indefinite because it is unclear if the composite comprises only the fiber-reinforced polymeric matrix or the composite is a two-part system comprising (i) the fiber-reinforced polymeric matrix and (ii) the detection means.

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5. Regarding claims 31-47 and 50, the word "means" is preceded by the word(s) "detection" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 10, 12-16, 18-21, 23-24, 26-33, 49-52, 54-55, 57 and 60-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Turpin, U.S. Patent Number 4,954,195.

Turpin discloses a process for increasing the damage tolerance in a composite without the loss of possibility or mechanical properties wherein the process includes mixing a thermoplastic material with a high glass transition temperature such as polyimide with a hot thermoset resin such a epoxy resin and with employing about 5 to 40% of the thermoplastic material by weight of the mixture of the two resins (see abstract and reference claim 7). Turpin also discloses that the hot resin dispersion is then applied to fiber reinforcement such as carbon fiber tapes to form laminates or prepregs (see reference claim 10). Additionally, Turpin discloses that upon curing the thermosetting resin at elevated temperatures, the thermoplastic materials dissolve in the

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thermoset resin forming a composite with no definable boundary interfaces between the thermoplastic and thermosetting resins (see column 2, line 53-column 3, line 34).

8. Claims 1-2, m4-5, 10, 12-16, 18-24 and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Wiseman et al., U.S. Patent Number 5,306,773.

Wiseman discloses a moldable resin composition comprising a thermosetting unsaturated polyester resin and a mixture of thermoplastic polymers of vinyl acetate and epoxy resin (see abstract). It is disclosed in column 5, lines 6-32 that the resin composition can include fiber reinforcement such as carbon fibers of a glass fiber veil mat. Reference claim discloses that the fiber-reinforced resin composition moldable at room temperature comprises 50 to 75 percent thermosetting unsaturated polyester resin and about 10 to about 40 percent weight of reinforcement fiber.

9. Claims 1-2, 4, 10-16, 18-24 and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Chiba et al., U.S. Patent Number 5,952,435.

Chiba discloses a composite material comprising a mixture of an epoxy resin and an aromatic polycarbonate thermoplastic resin (see column 3, lines 31-35). Additionally, Chiba discloses that the composite comprises a reinforcing fiber wherein the reinforcing fiber such as carbon or glass fiber (see reference claim 7). Chiba also discloses that an acid anhydride is used as a curing agent for the epoxy resin (see reference claim 1). Figures 1A–B disclose the volume ratio containing the thermoplastic resin as required by the present claims.

***Double Patenting***

10. Claims 1-62 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-35 of copending Application No.

11/577,968. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in both applications recite a composite material comprising a fiber reinforced polymeric matrix system wherein the matrix system comprises a mixture of a thermoplastic resin and a thermosetting resin. Additionally, the claims in both applications recite a composite material with a damage detection system.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Camie S. Thompson whose telephone number is 571-272-1530. The examiner can normally be reached on Monday-Friday 8:00 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1794

/Camie S Thompson/  
Examiner, Art Unit 1794